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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/828,416	04/21/2004	Nobuhiro Nakamura	252144US-2 CONT	4529
22850	7590	06/13/2006	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.			GUHARAY, KARABI	
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ALEXANDRIA, VA 22314			PAPER NUMBER	
			2879	

DATE MAILED: 06/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/828,416	<b>Applicant(s)</b> NAKAMURA, NOBUHIRO	
	<b>Examiner</b> Karabi Guharay	<b>Art Unit</b> 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on RCE, filed on 12 April 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-12 and 14-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-12 and 14-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/30/05</u> | 6) <input type="checkbox"/> Other: _____  |

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12 April 2006 has been entered.

***Response to Amendment***

Amendment, filed on 10 March 2006 has been considered and entered.

Claims 1 & 11 are amended.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 11-12, 14-18 & 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirahata et al. (JP 2001-351778).

Regarding claims 1-2, Shirahata discloses an organic EL display element comprising a first conductive layer (4), a second conductive layer (2) opposed to the first conductive layer, a driving current circuit (since circuit provides current through the conductors) connecting terminal connected electrically with the first electrode (4) via supplementary wire (5), and an organic EL layer (3) disposed between first and second

conductive layer, wherein the supplementary layer at least has one surface (8) layer containing Mo (see Abstract & paragraph 3 & 8), since organic EL device comprising several pixels (paragraph 4), thus it would have been obvious to one having ordinary skill in the art to have at least 30 supplementary wires.

Further Shirahata discloses a passive matrix EL display and discloses that the resistance of the extraction electrode made of Mo is less, thus configured to carry at least 50 mA of current (since low resistance connecting wires are capable of carrying currents greater than 50ma).

Regarding claim 3, Shiraha discloses that the second electrode (2) is a transparent electrode, but fails to disclose ITO as the material for transparent electrode. However, ITO is a well known preferred material for transparent electrode, used in organic EL display.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use ITO, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. See MPEP 2144.07.

Regarding claim 4, Shirahata discloses that the supplementary wire has a layer made of Ag (paragraph 8).

Regarding claim 5, Shirahata discloses that the first conductive layer is connected to an etched surface of the layer containing Mo (paragraph 12).

Regarding claims 11, Shirahata discloses an organic EL display element comprising a first conductive layer (4), a second conductive layer (2) opposed to the first

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conductive layer, a driving current circuit connecting terminal connected electrically with the first electrode (4) via supplementary wire (5) provide current to the electrode via supplemental wire, and an organic EL layer (3) disposed between first and second conductive layer, wherein the supplementary wire comprises at least 3 layers, barrier layer 8 made of Mo, Al layer, and an adhesion promotion layer 9 (see Fig 5), since organic EL device comprising several pixels (paragraph 4), thus it would have been obvious to one having ordinary skill in the art to have at least 30 supplementary wires.

Further Shirata specifically teaches low resistance material for the supplemental wire (see paragraphs 3 & 8), thus supplemental wire is configured to carry a driving current of at least 50 mA.

Regarding claim 12 & 22, though Shirahata does not explicitly disclose driving circuits, they are inherently present in order to drive the organic EL display.

Claims 14, 15, 16, 17 recite essentially the same limitations of claims 2, 3, 4 & 5 respectively, thus claims 14, 15, 16 & 17 are rejected as claims 2, 3, 4 & 5.

Regarding claims 6 & 18, Shirahata discloses that a portion of the first conductive layer connected to the layer containing Mo is defined by the insulating layer 6 (see paragraph 8).

Regarding claim 21, Shirahata fails to disclose that the first conductive material contains AL, however, Aluminum is a preferred material for forming metal electrodes for the display, thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use aluminum as the material for the first electrode in the device of Shirahata, since it has been held to be within the general skill of a worker

in the art to select a known material on the basis of its suitability for the intended use.

See MPEP 2144.07.

Claims 7,8, 19 & 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirahata as applied to claim 1, in view of Codama et al. (U.S. 6,1 14,805).

Regarding claims 7 & 19, Shirahata teaches all of the limitations of claim 7, but fails to teach wherein the Mo alloy contains Nb.

Codama et al. in the analogous ad teaches wherein the Mo alloy contains Nb (col. 8 lines 39-47; col. 8 line 30). Additionally, Codama et al. teaches incorporation of such a Mo alloy contains Nb to improve the thin film resistance of interconnection electrode (col. 8 lines 30-50) and provide a working interconnection electrode. Note choose an Mo alloy with Nb where is 10% at%.

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use wherein the Mo alloy contains Nb in the auxiliary electrode of Hosokawa, since such a modification would improve the thin film resistance of interconnection electrode and provide a working interconnection electrode as taught by Codama et al.

Regarding claims 8 & 20, Codama discloses wherein the content of Nb in the Mo alloy is 5 to 20 atomic %. This claim is rejected for the same reasons found in claim 7.

Claims 1-3, 6 & 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagayama (JP 2000-243558).

Regarding claim 1-3 & 10, Nagayama teaches an organic EL (Fig 1-3 & 5) display element comprising a first conductive layer 9, made of aluminum, a second

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conductive layer (5), made of transparent ITO, opposed to the first conductive layer 9, a driving current circuit (see paragraph 0003) connecting terminal connected electrically with the first electrode (9) via supplementary wire (11), and an organic EL layer (7) disposed between first and second conductive layer, wherein the supplementary layer at least has one surface layer containing Mo (see Abstract & paragraph 8), since organic EL device comprising several pixels (see Fig 1), thus it would have been obvious to one having ordinary skill in the art to have at least 30 supplementary wires (11) for forming a large display.

Further, Nagayama discloses a passive matrix EL display and discloses that the electrode leading part 11 is made of high melting point metal (paragraph 9), and further teaches in paragraph [0003] that large current is flowing through the conductors via supplemental wire (11) so low resistance material is chosen, thus it is configured to carry a driving current of at least 50 mA of current.

Regarding claim 6, Nagayama discloses that a portion of the first conductive layer (9) connected to the layer containing Mo is defined by an insulating film (see paragraph 13).

### ***Response to Arguments***

Applicant's arguments, filed on 10 March 2006 have been considered but they are not persuasive.

Applicant has amended claims 1 & 11 by changing "driving circuit" to "*driving current circuit*" and for the support, applicant indicates specification page 23, lines 11-19, which talks about pixel size, luminance efficiency of the pixels and only relevant line

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is "current flowing into cathode exceeds 50mA". This certainly does not explain what applicant is actually meant by introducing "*driving current circuit*".

Any simple circuit having a voltage source and a resistance applied across the voltage source will drive a current through the resistance. So it can be called driving current circuit. Value of current will both depend on the applied voltage and the value of the resistance.

Further applicant contends that prior art driving circuits are "*driving voltage circuit*", first of all it is not clear what does it mean specifically. Further, for support applicant indicated that prior art of Shirahata teaches that OLED can be driven on a *comparatively* low electrical voltage. Such a statement does not automatically infer that the prior circuit is not a "*driving current circuit*" and further it cannot infer that such circuit can not drive relatively high current, such as at least 50mA, through the conductor.

However, prior art of Shirahata specifically teaches low resistance material for the conductor, same as applicant's supplemental wire. Claim language recites, "Supplemental wires are configured to carry at least 50mA".

Thus, it is the position of examiner that such low resistance supplemental wire of Shirahata's device could be configured to carry at least 50mA of driving current.

In case of Nakayama, the prior art explicitly teaches flow of high current through the supplemental wire (see paragraph 3).



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**Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is (571) 272-2452. The examiner can normally be reached on Monday-Friday 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*K. Guharay*

Karabi Guharay  
Primary Examiner  
Art Unit 2879

*6/8/06*